

RESPONSE

1. Claim Rejections - 35 USC Section 103

The Examiner rejects claims 1-11 under 35 USC 103(a), "...as being unpatentable over Gayman (US 5,091,079), in view of Thomas (US 2,963,865) (both newly cited) and Wear et al (US 4,640,020) (previously cited)."

Section 103(a) rejections have been examined in cases such as *Pentec, Inc. v. Graphic Controls Corp.*, 766 F.2d 309, 227 USPQ 766 (CAFC 1985); *In re Find*, 837 F.2d 1071, 5 USPQ2d 1596 (CAFC 1988); and *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (CAFC 1983), cert. denied, 469 US 851 (1984). These cases indicate that section 103 rejections must be determined by looking at the problem from the point of view of the inventor at the time of the invention and may not be based upon hindsight with the invention reconstructed based upon the a blueprint supplied by the applicant's claims. As indicated by the court in *Interconnect Planning Corp. v. Feil*, 774 F.2d 1132, 227 USPQ 543, 551 (CAFC 1985) there must be some objective reason for making a combination of prior art references other than hindsight obtained from the invention itself.

Under a variety of other cases including *In re Laskowski*, 871 F.2d 115, 10 USPQ2d 1297 (CAFC 1989), *In re Bond*, 910 F.2d 831, 15 USPQ2d 1566 (CAFC 1990), and *In re Lowry*, 32 F.3d 1579, 32 USPQ2d 1031 (CAFC 1994) it is not enough simply to find the elements of an invention in the prior art and to postulate that such a combination *could* occur. There must be some teaching or indication in the prior art that such a combination is desirable. Any rejection of claims is improper under section 103, if no teaching, suggestion, or incentive supporting the combination is found in the prior art. Also see MPEP Section 2143.01.

The Examiner indicates that Gayman shows "an induction microwave heat-treating sludge device including (1) a loading section (2,3) into which the material may be introduced using loading means; (2) a treatment section (4,5) which is in communication with the loading section; (3) an unloading section (the end portion between 5 and 6 in Figure 1) which is in communication with the treatment section; (4) an extruder 3 within said loading section which is capable of pushing the material from said loading section into said treatment section and through

said treatment section into said unloading section; (5) a plurality of microwave guides (routine components but not explicitly shown) within said treatment section capable of directing microwaves from a microwave generator into the material within said treatment section, and (6) unloading means (container 6 and conveyor belt 7) capable of removing the material from said unloading section; whereby material may be loaded into said loading section and pushed into said treatment section; the material treated by microwaves within said treatment section and the material removed from said unloading section by unloading means”

Applicants, of course, disagree with the Examiner’s assessment of Gayman. Applicants assert that the basic concept of Gayman is very different from that of the instant invention and that far from disclosing all of the features of the instant invention actually teaches far, far away from the instant invention. The instant invention includes a loading section, a treatment section, an unloading section, and a reciprocating ram to move the material through these sections. Perhaps Applicants’ greatest difficulty with the Examiner’s reading of Gayman is in the phrase “(4) an extruder 3 within said loading section which is capable of pushing the material from said loading section into said treatment section and through said treatment section into said unloading section...” It is apparent from Figure 1 and the body of the patent (particularly col. 5, lines 30 -37 and claims 1(g)) that the extruder 3 doesn’t push the material from the loading section into a treatment section, but merely deposits the material onto a conveyor belt 7. It is the conveyor belt which provides the motive force to transport the material through the ovens etc. rather than the extruder. The Examiner further characterizes Gayman using the phrase “whereby material may be loaded into said loading section and pushed into said treatment section...” Applicants also assert that this is an improper characterization of Gayman for the reason stated above. Gayman does not teach pushing material through a treatment section. Gayman teaches dropping material onto a conveyor belt and moving the material through the treatment section on the conveyor belt.

The Examiner also characterizes Gayman as indicating “(5) a plurality of microwave guides (routine components but not explicitly shown) within said treatment section capable of directing microwaves from a microwave generator into the material within said treatment section.” Applicants take issue with this assessment of Gayman as well. Gayman actually treats microwaves as if they were more of an afterthought than an integral part of the invention. Microwave guides are never mentioned in the patent and microwave apparatus is not even

indicated as an element in the detailed description or drawings. There are only 11 elements indicated and elements 8a and 8b are described only as "ovens." The invention description much more often refers to the heating means as "induction heaters" than as microwaves. This treatment of microwave as being of only secondary interest is reflected in the claims as well. The main claim in Gayman references "means for initially induction-heating said mixture" and microwave appears only as a dependent claim 3 "where said initial means of induction heating and said means of induction heating are microwave ovens." Therefore, Applicants assert that it is inappropriate to make the leap from the tangential use of "microwave ovens" in Gayman to the "plurality of wave guides within said treatment section capable of directing microwaves from a microwave generator into the material within said treatment section" of the instant invention.

Under MPEP Section 2141.02 "In determining the differences between the prior art and the claims, the question under 35 U.S.C. 103 is not whether the differences themselves would have been obvious, but whether the claimed invention as a whole would have been obvious." When taken in little pieces, a loading section, a treatment section, and an unloading section, it does seem almost obvious to come up with the instant invention. However, when the claimed invention is taken as a whole, it seems virtually impossible to make the leap from the invention disclosed in Gayman to the instant invention. The basic concept of the instant invention is the use of rams to push the material entirely through the device. The basic concept of the invention in Gayman, it to dump the material onto a conveyor belt and let the belt move the material through the process. Any mixing done in Gayman is done in an industrial mixer (col. 5, lines 32-40) before the material enters what has been characterized as the treatment section. In the instant invention any mixing which occurs happens because of the pushing of the material through the treatment section by the rams. Applicants assert that, far from making the instant invention obvious, it would be difficult to come up with two material treatment devices which were more different than Gayman and the instant invention.

Therefore, taking both inventions as a whole, Applicants assert that the differences between the instant invention and Gayman would not have been obvious to a person of ordinary skill in the field. A potential inventor standing in the shoes of the instant inventors at the time of the invention would invent a dryer which included some form of transport method which moved the material through the treatment section rather than that of the instant invention where the

material, essentially, moves itself through the treatment section. (Material upstream pushes material further downstream through the treatment section and out the unloading section.) That is, rather than the instant invention being obvious in light of Gayman, Gayman actually teaches strongly away from the instant invention.

The Examiner agrees that the reciprocating ram method of movement of material through the instant invention is not disclosed in Gayman, but that "Thomas shows that it is well known in the art of sludge treating devices to use an extruder for moving the sludge and either continuous screw type extruders or ram type extruders may be used (see Figures 1 and 2, col. 1, lines 15-72). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Gayman to use any well known load feeding extruders including reciprocating rams, in view of the teaching of Thomas for extruding and moving the sludge."

In addition to the above mentioned rules for evaluating Section 103 rejections, Applicants point out the following portions of MPEP Section 2143:

To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure.

First, Applicants assert that even using Thomas as prior art in this case is inappropriate. In order to be considered as prior art for determining patentability under Section 103, the reference must be something which a person skilled in the art might ordinarily consider. The instant invention, Gayman and the other references cited all relate to microwave treatment or drying. Thomas relates to "apparatus for extrusion of various materials." More specifically (col. 1, lines 19-21) the invention relates to devices "of the type wherein a charge of material to be extruded is forced in a batchwise manner through an appropriate extrusion die to form the desired shapes." It appears very unlikely to Applicants that a person knowledgeable in the field of microwave drying or treatment would even think of trying to apply technology from a totally unrelated field such as shaped extrusion. The basic function of the device in Thomas is to force a

material (admittedly the patent does mention sludge) through a die to shape the material.

Material transport is not a consideration. Material transport is the sole purpose of the ram in the instant invention. Why would an inventor contemplating sludge treatment with microwaves even think of looking at Thomas?

Second, there is no suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Thomas deals with extrusion in which a material may be forced through a die to shape the material. In the instant invention, the material is not forced or pushed through a die. The reciprocating ram merely pushes the material through the loading, treatment, and unloading sections of the invention.

Third, there must be a reasonable expectation of success in combining references. Actually combining Thomas and Gayman does nothing to change Gayman. No matter what type of extruder was used, the extruder simply dumps the material onto a conveyor belt and the conveyor belt moves the material through the treatment section. The only way Thomas could be combined with Gayman to make Gayman more like the instant invention would be if the extruder pushed the material along the conveyor belt. Pushing material along on a moving conveyor belt appears to have little likelihood of success. Although the drawings are the only thing to be considered in analysis of a patent, an examination of Figure 1 in Gayman indicates how ludicrous it would be to combine Thomas and Gayman. It appears highly unlikely that a potential inventor would look at Gayman and look at Thomas and then think it obvious to combine the two. It further appears that any reasonable combination of Gayman and Thomas would result not in a reasonable expectation of success, but in a reasonable expectation of failure.

MPEP Section 2143.01 further indicates that "If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teaching of the references are not sufficient to render the claims prima facie obvious." As pointed out above, the basic principle of operation of Gayman is to have material move through a "treatment section" on a conveyor belt. If Thomas and Gayman were to be combined, that principle of operation would be radically changed. The material would not be moved through the treatment section by a conveyor belt, but by some form of forced push.

As pointed out above MPEP Section 2143.01 and cases cited indicate that “The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination.” This is, of course, always a difficult point for either a patent examiner or a patent practitioner to make; because it is nearly always pretty subjective. However, Applicant asserts that, in this case, it is somewhat easier than on most occasions. The instant invention is intended to move material through a loading, treatment, and unloading section by using the motive power of a reciprocating ram. Thomas discloses a ram to force material through a die. Gayman discloses a conveyor belt powered method of moving material through an induction oven. There is no suggestion in the prior art that suggest the desirability of the combination. To paraphrase MPEP Section 2143.01, there is no teaching, suggestion, or motivation to combine Gayman and Thomas found in either of the references or in the knowledge generally available to one of ordinary skill in the art. Therefore, rejection of these claims based upon a combination of Gayman and Thomas should not be based upon obviousness.

The Examiner further uses a combination of Gayman and Wear (page 3) to make “obvious to one of ordinary skill in the art at the time the invention was made to modify Gayman to use a plurality of microwave guides each connected to a microwave generator for distributing microwave along the treatment section for better heating control.” Applicants assert that all of the above arguments relating to the combination of Thomas and Gayman also apply to the combination of Wear and Gayman: there is no teaching, suggestion, or motivation to combine them found in either of the references or in the knowledge generally available to one of ordinary skill in the art. Actually, Wear doesn’t appear to add anything to Gayman which would make the instant invention more obvious. Wear teaches further from the instant invention than Gayman does, because the “treatment section” in Wear is a vacuum chamber. That is, the pressure inside the treatment section in Wear is significantly less than ambient pressure. It would appear that pushing material into a vacuum chamber using a ram as in the instant invention would tend to cause an increase rather than a decrease in pressure within the chamber. In any event, it would appear that it would be very difficult to construct a ram type loader with which an interior vacuum could be maintained. Because of the vacuum problem, combination of Wear with Gayman makes the instant invention less obvious rather than more obvious.

The Examiner also uses Wear to teach the use of a purge gas passing over the product to carry away the vapor which make claims 2 and 8 obvious. Applicants assert that it isn't strictly true that Wear uses purge gas passing over the product. The device disclosed in Wear has at least two separate chambers. The upper conveyor 38 actually takes the material through the treatment sector where it is exposed to the microwave. The material and the liquid are then transferred to a lower conveyor 40 which is separated from the upper conveyor 38 by a shield 20. Microwave energy in the upper chamber actually is reflected off of the shield 20 and the chokes 120 prevent the microwave energy from entering the chamber created by the lower conveyor 40. The purge gas which is nitrogen or another noncondensable gas is introduced at the lower conveyor 40 through pipes 140. It appears to Applicants that this actually teaches away from the introduction of air directly into the treatment section. Wear takes great pains to separate the treatment section with the microwaves and the upper conveyor 38 from the chamber denominated by the lower conveyor 40. The purge gas is introduced at the lower conveyor 40. An inventor inspecting Wear would most likely infer that there is something wrong with introducing purge gas in the treatment section where the microwave is. Applicants assert, therefore, that Wear teaches away from the introduction of outside air into the dryer such that it passes over the material and is then removed from the dryer. This result is reinforced by the requirement in Wear that nitrogen or some other "noncondensable" gas be used rather than outside air.

The Examiner further indicates at page 4 that "In regard to claims 3, 5-7 and 9-11, tilting the treatment section at an angle other than level to increase or decrease the flow rate of material through said treatment section is well known in the art (as shown in Gerling, previously cited)." Without repeating all the arguments made above, Applicants assert that the most of the same also apply here. Specifically, however, Applicants point out that in Gerling only the material transport tube is tilted to change the flow rate of material through the tube. The actual "oven" which contains the microwave emitters does not tilt and the tube rather than the "treatment section" tilts. In the instant invention, the treatment section is the transport medium and the material is in physical contact and communication with the material. In Gerling, only the tube tilts and the material in the tube is not in physical contact or communication with the part of the apparatus which includes the microwave emitters and enclosure. Applicants assert, therefore, that the inclinable treatment section of the instant invention is not obvious in light of Gerling.

The Examiner also indicates (page 4) that "In regard to claims 4 and 9-11, Gayman also shows the use of a modular construction to permit scale up or scale down such that the length of the microwave dryer may be adjusted to suit production requirement (see col. 5, lines 3-19 and 49-54)." Under MPEP Section "If an independent claim is nonobvious under 35 USC 103, then any claim depending therefrom is nonobvious." Claim 4 directly or indirectly "depends" from claim 1. If claim 1 were to be determined not to be obvious under the arguments made above, then claims 4 should not be considered obvious. Therefore, Applicants reasserts all of the above arguments made relating to claim 1, as they relate to claims 4; but will not repeat those arguments in detail here. Similarly, claims 3, 5-7, 9-11 depend upon other claims and Applicants reassert all of the above arguments relating to the patentability of claims 3, 5-7, 9-11.

Conclusion

For all of the foregoing reasons, the applicant submits that the microwave dryer disclosed and claimed in the present application is not fairly taught by any of the references of record, taken either alone or in combination. Therefore, allowance of the present application is in order, and is requested.

Respectfully submitted;



Gene R. Woodle

Reg. No. 36,973

Tel. No. (605) 342-0853

cc: William Hein and Brian Granger

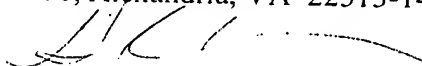
Certificate of Express Mailing

"Express Mail" mailing label number:

ED081411542US

Date of Deposit: March 23, 2005

I hereby certify that this correspondence is being deposited with the United States Postal Service "Express Mail, Post Office to Addressee" service under 37 CFR section 1.10 on the date indicated above and is addressed to: Mail Stop Amendment, Commissioner for Patents, PO Box 1450, Alexandria, VA 22313-1450, on March 23, 2005.



Gene R. Woodle, Reg. No. 36,973

Dated: March 23, 2005

Please amend the title of the invention as it appears on the first page of the specification as follows:

Microwave Dryer With Ram For Material Movement

Please amend the claims of the application as follows:

Cancel claim 7

Cancel claim 10

Cancel claim 11